REMARKS / ARGUMENTS

Status of Claims

Claims 1-27 and 29-33 are pending in the application. Claims 1-27 and 29-33 stand rejected. Claims 7-12, 18-27 and 29-33 are objected to but would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. §101 described below. Applicant appreciates the Examiner's notation of the allowable claims. Applicant has amended Claims 1, 7, 10, 14, 17, 18, 31 and 32, leaving Claims 1-27 and 29-33 for consideration upon entry of the present Amendment.

Applicant respectfully submits that the rejections under 35 U.S.C. §101 and 35 U.S.C. §103(a) have been traversed, that no new matter has been entered, and that the application is in condition for allowance.

Rejections Under 35 U.S.C. §101

Claims 1-16 and 31-33 stand rejected under 35 U.S.C. §101 as not falling within one of the four statutory categories of invention.

Regarding Claims 1-16 and 31-33, the Examiner found that while the claims recite a series of steps or acts to be performed, the claims neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

By this Amendment, Applicant has amended independent Claims 1, 7 and 31 to include the following limitations:

"acquiring a digital image of a biological object;" and,

". . . to generate a filtered image of the biological object."

Applicant respectfully submits that a claim to a process is patentable if the claim is either tied to a particular machine, or shown to transform an article into a different state or

thing. *In re Bilski*, 545 F.3d 943, 88 USPQ2d 1385 (Fed. Cir. 2008). Applicant further submits that a process that electronically transforms raw data of physical and tangible objects is patentable if it transforms the data into a representation of physical objects or substances. *Id.* By this Amendment, Applicant respectfully submits that independent Claims 1, 7 and 31 are patentable in that the claim transforms an article, e.g. the biological object, into a digital image. The digital image is further transformed to generate a filtered image of the biological object. Applicant submits that the filtered image is a representation of the biological object that has been transformed to remove background noise and improve the signal to noise ratio of the resulting image. [Present Application, Paragraph [0013]]. Accordingly, Applicants respectfully submit that Claims 1-16 and 31-33 are patentable. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 18-32 stand rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter.

Regarding claims 18-32, the Examiner found that the claims recite "a program storage medium" which can be a signal with information which is readable by the computer through signal communication. The Examiner notes that signals are non-statutory subject matter and required appropriate correction.

Applicant traverses this rejection for the following reasons.

By this Amendment, Applicant has amended independent Claim 18 to recite in the preamble:

"A program storage medium . . . <u>storing</u> a program of instructions . . ." [emphasis added]

Applicant respectfully submits that a signal, which is transitory, cannot store instructions. The term "store" means to place or leave in a location for preservation or

later use or disposal. [See "store." Merriam-Webster Online Dictionary. 2009. Merriam-Webster Online. 20 February 2009 <http://www.merriam-webster.com/dictionary/store>]. Applicant submits that since a signal is transient, the program instructions cannot be placed in a signal for later use. Therefore, Applicants submit that independent Claim 18 does not read on a signal. Applicant respectfully submits that independent Claim 18 is directed to statutory subject matter. Reconsideration and withdrawal of this rejection is respectfully requested.

Applicants further submit that the amendments to Claims 1, 7, 18 and 31 were not performed to overcome prior art, but rather were due to the recent Federal Circuit holding in *In re Bilski* and the Patent Office's recent change in examination policy regarding the potential for Beauregard claims to encompass a signal.

Applicant appreciates the Examiners comment that Claims 7-12, 18-27 and 29-33 are allowable amended to overcome the rejections under 35 U.S.C. 101. Applicant submits that the amendments of Claims 1, 7, 18 and 31 overcome the rejections under 35 U.S.C. 101 and that these claims are now in a condition of allowance.

Accordingly, Applicant respectfully requests the Examiner to reconsider and withdraw this rejection, which Applicant considers to be traversed.

Rejections Under 35 U.S.C. §103(a)

Claims 1-5 and17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Wang et al. (U.S. Patent No. 7391895, hereinafter Wang).

Claims 1-6 and 13-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Wang in view of Hong et al. (U.S. Patent Publication No.

2002/0037103, herinafter Hong, collectively Wang and Hong referred to as the "References").

Applicant traverses these rejections for the following reasons.

Applicant respectfully submits that the obviousness rejection based on the References is improper as the References fail to teach or suggest each and every element of the instant invention in such a manner as to perform as the claimed invention performs. For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). The Examiner must meet the burden of establishing that all elements of the invention are taught or suggested in the prior art. MPEP §2143.03.

In the Office Action, the Examiner states that since Wang calculates a transition region, it would be obvious to process each region separately to allow for pixel intensity suppression. Applicant respectfully disagrees.

Applicant finds that Wang discloses the defining of a foreground region and a background region. Wang then looks for holes or "gaps" which are pixels that have not been assigned to either the foreground region or the background region but are in the proximity of the transition between the foreground and the background regions. While Applicants appreciate the Examiner's comment regarding the definition of a region, Applicant reiterates their disagreement with the Examiner's position that Wang teaches a a transition region since the gaps are then assigned to either the foreground or background regions. Applicants submit that even if the gaps are considered a "region" as proposed by the Examiner, are not a region in the context of the present application since the process taught by Wang then repeats until all of the gaps are removed. [Wang, Col. , Lines, 25 – 32]. Since the "region" cited by the Examiner is eliminated, there is no region remaining to process for the reduction of pixel intensity.

Independent Claims 1, 18 and 31 include the limitation that a transition region is calculated and then separately and independently processed from the foreground region and the background region to suppress pixel intensities in the background region.

Applicant submits that even if we accept the Examiner's position that Wang teaches a transition region, Wang does not lead one of ordinary skill in the art to process the transition regions to suppress pixel intensity in the background region. Wang teaches a process of comparing the foreground and the background and identifying pixels that are not connected to either region. [Wang, Col. 9, Lines 23-29]. This requires that the foreground and background be analyzed together. Accordingly, Applicants submit that in the process taught by Wang the foreground, background and transition regions are neither separate nor independently processed.

In order to establish a prima facie case of obviousness, the burden is on the Examiner to 1) determine the scope and contents of the prior art; 2) ascertain the differences between the prior art and the claims at issue; and 3) resolving the level of ordinary skill in the art. *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Applicants submit that the Examiner's conclusory statement, that it is obvious each region may be processed separately since each region is separate, fails to satisfy this burden. Further clarification of this rejection is respectfully requested.

Applicants submit that if one considers the scope and content of Wang that one of ordinary skill in the art would not seek to modify Wang to process the foreground region, the background region and the transition region separately and independently of each other for suppressing pixel intensities in the estimated background region and improving image quality to generate a filtered image of the biological object as claimed in independent Claim 1. As mentioned above, Wang does not process each of the regions separately or independently. Applicant further submits that Wang would not suggest to one of ordinary skill in the art to make such a modification since Wang discloses that the background and foreground region are diagnostically irrelevant. [Wang, Col. 9, Lines 12-13]. Wang further does not seek to reduce pixel intensity in the background region to generate an improved image of an object as claimed in independent Claim 1 since Wang merges the background and foreground regions and subtracts these regions from the

original image. [Wang, Col. 9, Lines 33-34]. Accordingly, that the scope and content of Wang is substantially different from the claimed limitations of independent Claim 1.

Applicants submit that, at best, Wang may lead one of ordinary skill in the art to process a foreground and background region separately. However, this extension of Wang is undermined by Wangs disclosure that the foreground and background regions are merged and then subtracted from the original image as discussed above. Therefore, Applicants submit that independent Claim 1 is not obvious in light of Wang. Reconsideration and withdrawal of this rejection is respectfully requested.

With respect to Claims 2-5 and 17, which depend, either directly or indirectly from independent Claim 1 also incorporate all of the limitations of the parent claim. Accordingly, for the reasons set forth above with respect to independent Claim 1, Applicant submits that dependent Claims 2-5 and 17 are not obvious in light of Wang. Reconsideration and withdrawal of this rejection is respectfully requested.

Dependent claims 6 and 13-16 were further rejected as being obvious in view of Wang in light of Hong. As discussed above, Wang fails to teach, disclose or suggest the claimed limitation of a calculated transition region that is separately and independently processed from the foreground and background regions. Wang further does not disclose the calculating of incremental transition regions. Applicant respectfully submits that Hong fails to cure these deficiencies.

Hong teaches a method of segmenting a pixilated image and uses a morphological filter to decrease false foreground detection. Hong then classifies each block of pixels as being in the foreground image or the background image. [Hong, Paragraph [0020], Paragraph [0088]]. Thus, similar to Wang, Hong does not calculate a transition region that is processed separately from the foreground image or background image. At best, combination of Wang and Hong would provide for the processing of a foreground and a background image separately. Thus the proposed combination fails to operate as the

claimed invention performs since each of the three regions cannot be treated differently to improve image quality. Accordingly, Applicant submits that dependent claims 6, 13-16, 23-27 are not obvious in view of Wang in light of Hong. Reconsideration and withdrawal of this rejection is respectfully requested.

In view of the foregoing, Applicant submits that the References fail to teach or suggest each and every element of the claimed invention and are therefore wholly inadequate in their teaching of the claimed invention as a whole, fail to motivate one skilled in the art to do what the patent Applicant has done, fail to recognize a problem recognized and solved only by the present invention, fail to offer any reasonable expectation of success in combining the References to perform as the claimed invention performs, fail to teach a modification to prior art that does not render the prior art being modified unsatisfactory for its intended purpose, and discloses a substantially different invention from the claimed invention, and therefore cannot properly be used to establish a prima facie case of obviousness. Accordingly, Applicant respectfully requests reconsideration and withdrawal of all rejections under 35 U.S.C. §103(a), which Applicant considers to be traversed.

In light of the forgoing, Applicant respectfully submits that the Examiner's rejections under 35 U.S.C. §112, second paragraph and 35 U.S.C. §103(a), have been traversed, and respectfully requests that the Examiner reconsider and withdraw these rejections.

The Applicants believe that all pending claims are in condition for allowance and such action is earnestly requested. If the present amendments and remarks do not place the Application in a condition for allowance, the Examiner is cordially invited to contact the undersigned so that any such issues may be promptly resolved.

The Commissioner is hereby authorized to charge any additional fees that may be required for this amendment, or credit any overpayment, to Deposit Account No. 07-0845.

In the event that an extension of time is required, or may be required in addition to that requested in a petition for extension of time, the Commissioner is requested to grant a petition for that extension of time that is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to the above-identified Deposit Account.

Respectfully submitted,

CANTOR COLBURN LLP
Applicant's Attorneys

By: / D S Christensen Reg. No. 40955/

Dave S. Christensen
Registration No: 40,955
Customer No. 23413

Address: 20 Church Street, 22nd Floor, Hartford, CT 06103-3207
Telephone: (860) 286-2929
Fax: (860) 286-0115